

REMARKS

Claims 1-10 are pending. All claims are under examination.

Support

The newly added claims are all supported in the original application as filed including its specification and claims.

Claim 3 is substantially identical to original claim 1 except that claim 3 specifies an initiator and a solvent. The initiator is disclosed in the specification as filed on page 8 at about line 11. The solvent is disclosed in the specification as filed in the paragraph beginning on page 8 at line 20.

Support for new claim 4 can be found in original claim 1. Claim 4 defines a polymer produced by the process of claim 1 or any other process. Formula (1a) in claim 4 is identical to Formula (1) except that the vinyl group of Formula (1) has been polymerized in an addition polymerization reaction notoriously well known to those skilled in the polymer art.

Support for new claim 5 can be found in the specification as filed in the paragraph beginning on page 4 at line 5. The definition for R^4 begins on page 4 at line 9. The definition for R^5 and R^6 begins on page 5 at line 3. The definition for R^7 begins on page 5 at line 7.

Support for new claim 6 can be found in the specification as filed on page 8 beginning about line 8.

Support for new claims 7 and 8 can be found in the specification as filed on page 8 beginning about line 11.

Support for new claims 9 and 10 can be found in the specification as filed in the paragraph beginning on page 8 at line 20.

Issues Relating to the Specification

The Examiner is thanked for the suggestions in paragraph 2 of the last Office Action regarding possible amendments to the specification. The specification has been amended as suggested by the Examiner.

Double Patenting Issues

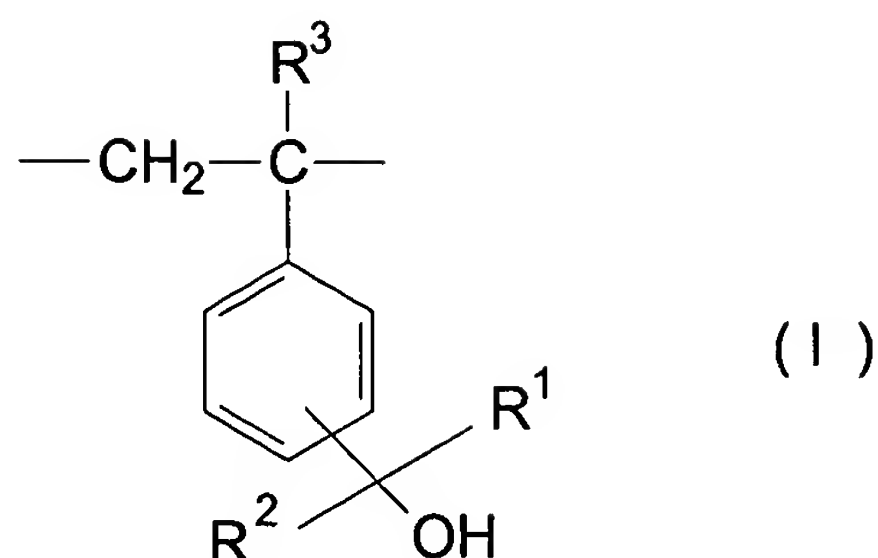
The provisional double patenting rejection, in paragraphs 3-5 of the last Office Action, over certain claims of Application No. 10/316,183 now USPG-PUB 2003/0232940 (Komoriya) is traversed. Such provisional rejection should never be made final. There is a clear line of distinction between the claims of Komoriya and those of the instant case. In claim 1 of the instant case, the inventive fluorinated polymer is obtained by living anion polymerization and therefore has a polydispersity index (Mw/Mn) of 1 to 1.20. This is not the same as the Komoriya polymers. The Komoriya polymers are obtained by radical polymerization. The polydispersity index (Mw/Mn) is

more than 1.5, as is evident from the TABLE of Komoriya. Komoriya fails to disclose or suggest that the polymer is obtained by living anion polymerization and furthermore fails to disclose or suggest any polymer with a polydispersity index of 1 to 1.20. Accordingly, the pending claims 1 and 2 are not identical to those of Komoriya but are completely different. The newly added claims differ from those of Komoriya in the above and in other additional respects.

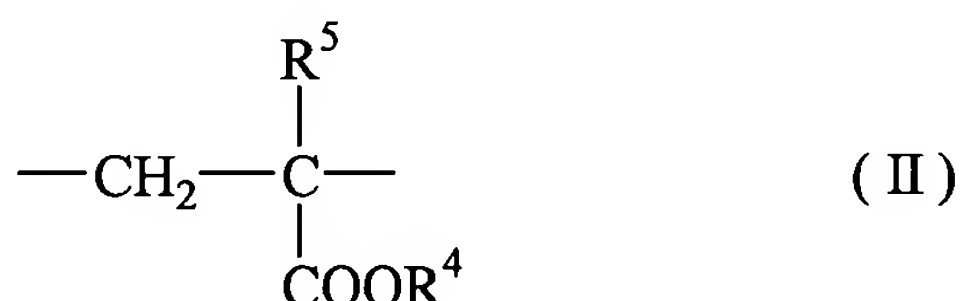
Issues under 35 U.S.C. §103

The rejection in paragraphs 6-10 of the last Office Action of all then pending claims as obvious over USPG-Pub 2002/0164538 A1 (Allen) or USPG-Pub 2002/0155376 A1 each individually in view of Journal of Fluorine Chemistry, Vol. 52, pages 301-306 (Sprague) is traversed.

Hashimoto discloses a positive resist composition comprising a binder resin and a radiation-sensitive compound, wherein the binder resin contains a polymerization unit of the following formula (I) and a polymerization unit of the following formula (II) and becomes alkali-soluble by the radiation-sensitive compound after irradiation with radioactive ray:

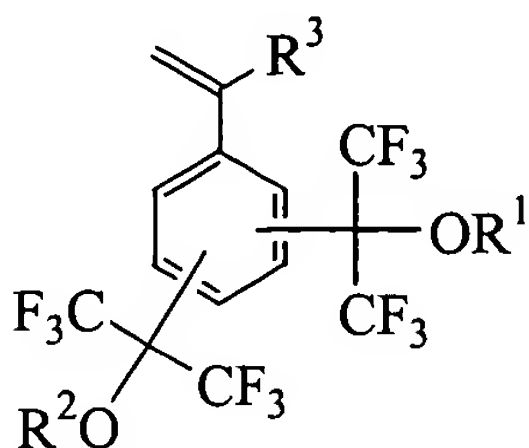


wherein, R^1 and R^2 each independently represent a fluoroalkyl group having 1 to 12 carbon atoms and carrying at least one fluorine atom, and R^3 represents a hydrogen atom, halogen atom, cyano group, alkyl group having 1 to 3 carbon atoms or a fluoroalkyl group having 1 to 3 carbon atoms and carrying at least one fluorine atom,



wherein, R^4 represents a group which is cleaved by an acid, and R^5 represents a hydrogen atom, halogen atom, cyano group, alkyl group having 1 to 3 carbon atoms or a fluoroalkyl group having 1 to 3 carbon atoms and carrying at least one fluorine atom.

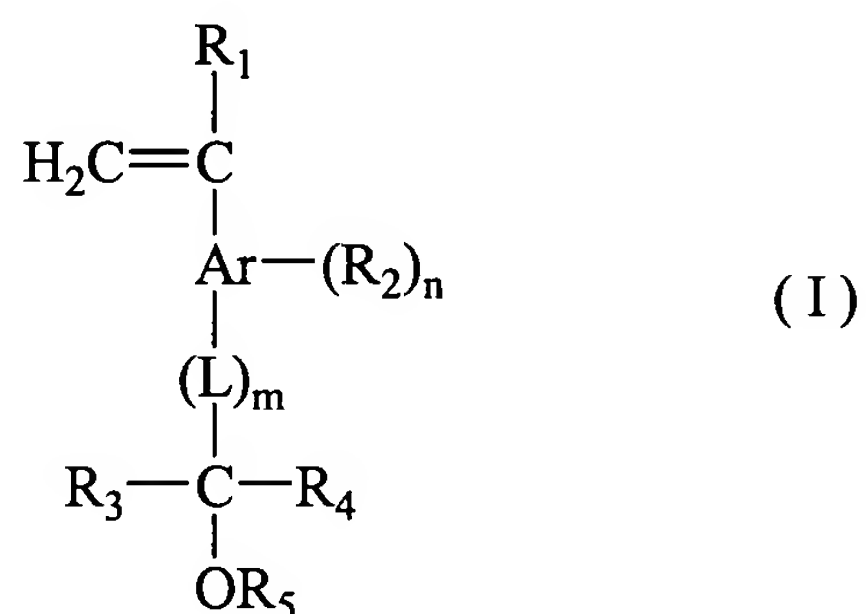
However, Hashimoto fails to disclose the inventive monomer of Formula (1) of pending claim 1, namely:



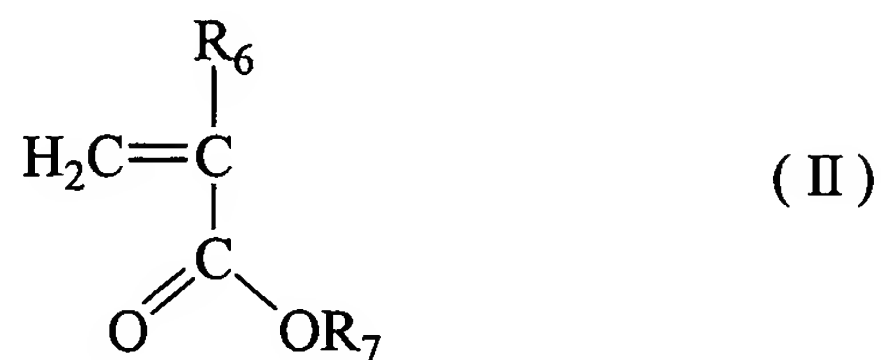
which has two $\begin{array}{c} \text{CF}_3 \\ | \\ -\text{C}-\text{OR} \\ | \\ \text{CF}_3 \end{array}$ groups bonded to the benzene ring.

Moreover, the production of the Hashimoto resin is conducted by radical polymerization.

Allen discloses a copolymer prepared by copolymerization of at least one aromatic monomer having the structure of formula (I)



and at least one monomer having the structure of formula (II)



wherein:

m is zero or 1;

n is an integer in the range of zero through 4 inclusive;

R_1 is H, F, lower alkyl, or fluorinated lower alkyl;

R_2 is alkyl, fluorinated alkyl, hydroxyl, alkoxy, fluorinated alkoxy, halogen, or cyano;

R_3 is a fluorinated alkyl;

R_4 is H, alkyl, or fluorinated alkyl;

R_5 is H, alkyl, protected hydroxyl, $-C(O)R_8$, $-CH_2-C(O)OR_8$, $-C(O)OR_9$,

or $-SiR_{10}$ where R_8 is H or alkyl, R_9 is alkyl, and R_{10} is alkyl or alkoxy;

R_6 is H, F, lower alkyl, or fluorinated lower alkyl;

R_7 is selected from the group consisting of H, an acid-labile moiety optionally substituted with one or more fluorine atoms, and an acid inert moiety optionally substituted with one or more fluorine atoms;

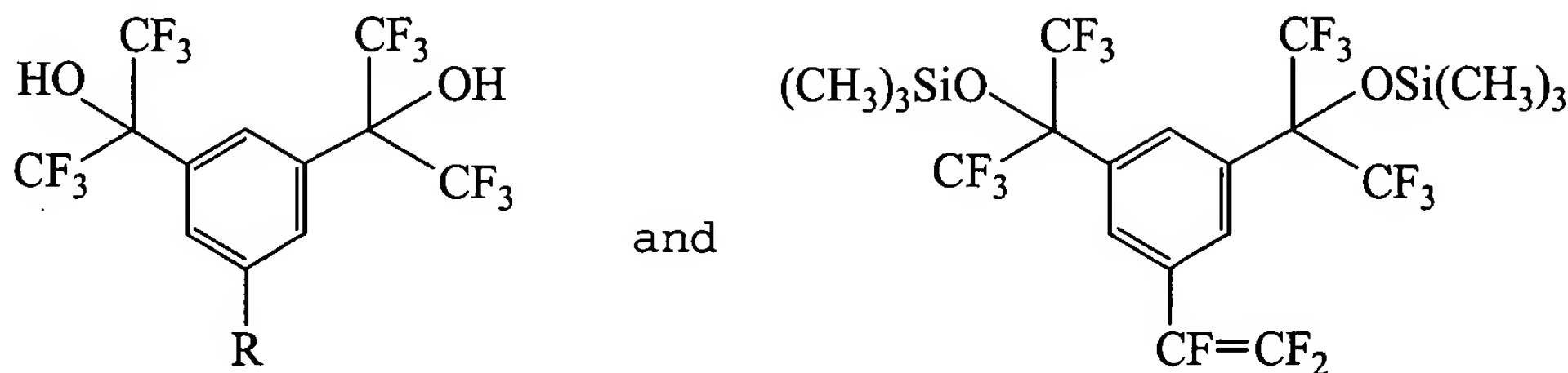
L is a hydrocarbylene linking group optionally substituted with one or more fluorine atoms; and

Ar is an aromatic moiety.

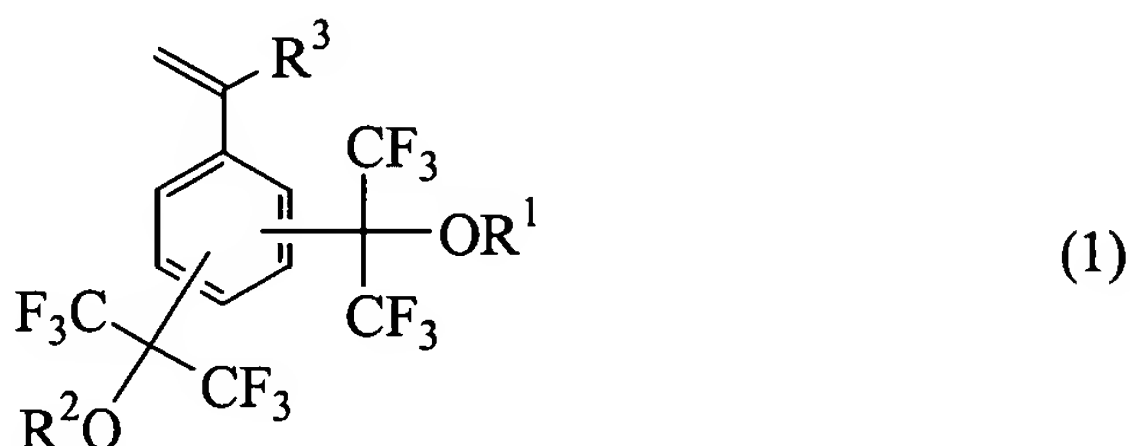
Allen also fails to disclose the inventive polymer having two $\begin{array}{c} \text{CF}_3 \\ | \\ \text{---} \text{OR} \\ | \\ \text{CF}_3 \end{array}$ groups bonded to a benzene ring. Moreover, the

The Allen polymer is also obtained by radical polymerization.

Although Sprague discloses



it fails to disclose a fluorinated polymer obtained by living anion polymerization of a monomer having the general formula (1) :



wherein R^1 and R^2 each are an acid labile group and R^3 is hydrogen or methyl, and having a polydispersity index of 1 to 1.20.

The rejection in paragraphs 11-14 of the last Office Action of all then pending claims as obvious over 3,179,640 (Middleton) in view of Sprague, Allen and Hashimoto is traversed. It would not be obvious to combine the references, there being no motivation for the skilled artisan to do so. Even if the references be combined the result would still not be subject matter within the scope of that claimed. Any hypothetical polymer resulting from the combined teachings of the references

would have a different structure and would not have the claimed polydispersity index of 1 to 1.20. The very fact that the Examiner believes that it is necessary to combine the teachings of four references is probative of the non-obviousness of the claimed invention.

The rejection of claims 1 and 2 in paragraphs 15 and 16 of the last Office action as obvious over Komoriya is traversed. Komoriya neither discloses nor suggests the claimed invention and is different from the claimed invention as discussed above with respect to the provisional double patenting rejection.

As the Examiner has correctly recognized the references, cited in the last Office action but not applied against the claims, fail to disclose or suggest the claimed invention.

Conclusion

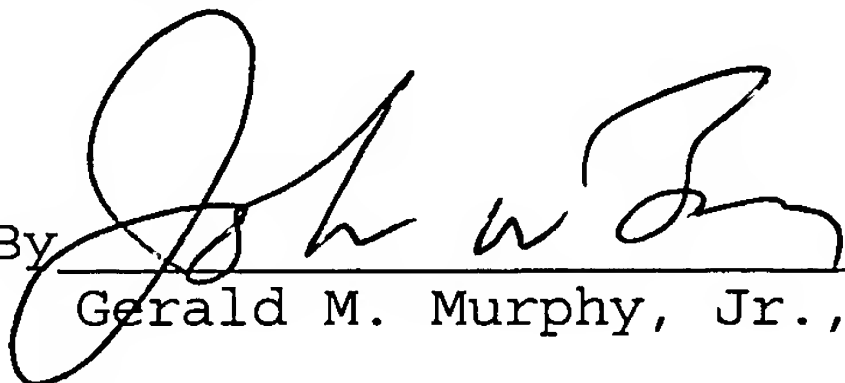
As Applicants have addressed and overcome all rejections in the Office Action, Applicants respectfully request that the rejections be withdrawn and that the claims be allowed.

Should there be any outstanding matters that need to be resolved in the present application, the Examiner is respectfully requested to contact David R. Murphy (Reg. No. 22,751) at the telephone number of the undersigned below, to conduct an interview in an effort to expedite prosecution in connection with the present application.

If necessary, the Commissioner is hereby authorized in this, concurrent, and future replies, to charge payment or credit any overpayment to Deposit Account No. 02-2448 for any additional fees required under 37 C.F.R. §§ 1.16 or 1.17; particularly, extension of time fees.

Respectfully submitted,

BIRCH, STEWART, KOLASCH & BIRCH, LLP

By  #32,801
Gerald M. Murphy, Jr., #28,977

GMM/DRM/jao
0171-0996P

P.O. Box 747
Falls Church, VA 22040-0747
(703) 205-8000

(Rev. 02/12/2004)